

What is claimed is:

1. A laser-based device comprising:
a VCSEL-type laser having an active side and a passive side opposite the active side; and
a photodetector unit on the passive side, the photodetector unit comprising
an absorbing region located so as to receive leakage photons exiting the laser through
the passive side, and
a Schottkey contact having a first portion abutting the absorbing region and through
which a current, caused by absorption of the leakage photons in the absorbing, can be measured.
2. The device of claim 1 further comprising:
a substrate abutting the active side.
3. The device of claim 2 wherein the substrate comprises:
an access way over at least a portion of the active side so that, when the laser emits light
through the active side, the emission will pass through the access way.
4. The device of claim 1 wherein the absorbing region comprises
a substrate on which the laser was grown.
5. The device of claim 1 further comprising:
a substrate located between a second portion of the Schottkey contact and the absorbing
region.
6. The device of claim 1 wherein the laser is a top emitting laser.

7. The device of claim 1 wherein the laser is a bottom emitting laser.
8. The device of one of claims 1 through 7 further comprising:
an electronic circuit chip hybridized to the laser.
9. The device of claim 8 further comprising:
a planarizing dielectric located between at least a portion of the electronic circuit chip and the
laser.
10. The device of one of claims 1 through 7 wherein the active side comprises an active
side mirror and wherein the active side mirror is doped so as to be p-type.
11. The device of one of claims 1 through 7 wherein the active side comprises an active
side mirror and wherein the active side mirror is doped so as to be n-type.
12. The device of claim 1 wherein the absorbing region is a semi-insulating material.
13. The device of claim 12 wherein the semi-insulating material comprises:
Gallium Arsenide.
14. The device of claim 12 wherein the semi-insulating material is less than two microns
in thickness.

15. The device of claim 12 wherein the semi-insulating material is about 1 micron in thickness.

16. The device of one of claims 1 through 7 wherein the active side comprises an active side mirror and wherein the active side mirror comprises at least one of a carbon dopant, a berrilium dopant or a zinc dopant.

17. The device of claim 16 wherein the active side mirror comprises:
AluminumGalliumArsenide.

18. The device of one of claims 1 through 7 wherein the passive side comprises a passive side mirror and wherein the passive side mirror comprises at least one of a silicon dopant or a tellurium dopant.

19. The device of claim 18 wherein the active side mirror comprises:
AluminumGalliumArsenide.

20. A method performed by a device comprising a laser having an active side mirror through which the laser is emitting an output signal, and a passive side mirror opposite the active side mirror, the method comprising:

measuring photons leaked out of the laser, through the passive side mirror, into a material that will convert the photons into an electrical current that is measurable using a Schottkey contact, via the Schottkey contact;

determining if a result of the measuring requires a compensation action; and

performing the compensation action when the compensation action is required unless the result of the measuring indicates that the laser is actually dead.

21. The method of claim 20 further comprising:
determining an output power amount for the laser based upon a proportional relationship between photon leakage and laser output power.
22. The method of claim 20 wherein the performing the compensation action comprises:
adjusting a bias current for the laser.
23. The method of claim 20 wherein the performing the compensation action comprises:
adjusting a modulation current for the laser.
24. The method of claim 20 further comprising:
substituting a redundant laser for the laser when the result of the measuring indicates that the laser is actually dead.
25. A method comprising:
- a) forming a laser, the laser having a first mirror having a first reflectivity and a second mirror having a second reflectivity lower than the first reflectivity;
 - b) defining an absorbing region outside the laser abutting a side of the laser containing the first mirror; and
 - c) abutting a Schottkey contact to a side of the absorbing region opposite the first mirror.

26. The method of claim 25 wherein the defining the absorbing region comprises:
applying a semi-insulating material onto the first mirror.
27. The method of claim 25 wherein the defining the absorbing region comprises:
forming a semi-insulating material on a substrate, and
wherein the forming the laser comprises growing the first mirror on the semi-insulating material so that the semi-insulating material is between the substrate and the first mirror.
28. The method of claim 25 wherein the first mirror has a doping of one of a p-type or n-type, and wherein defining the absorbing region comprises:
forming a region, having one of a p-type or n-type doping opposite the doping of the first mirror, on the first mirror; and
applying a semi-insulating material onto the region.
29. The method of claim 25 wherein the abutting the Schottkey contact comprises:
forming the Schottkey contact on a side of the semi-insulating material opposite the region and located to allow for connection of the Schottkey contact with an electronic integrated circuit.
30. The method of claim 25 wherein the abutting the Schottkey contact comprises:
forming the Schottkey contact on an electronic integrated circuit configured for hybridization with a chip having the laser thereon.

31. The method of one of claims 29 or 30, wherein the laser is one of multiple lasers, the method further comprising:

hybridizing the laser to the electronic integrated circuit.

32. The method of one of claims 25 through 30 wherein the laser is a top emitting laser, the method further comprising:

forming an opening in a substrate that abuts the absorbing region so that the abutting the Schottkey contact occurs through the opening.